OBJECTIVES: To estimate acute, short-term and long-term healthcare costs among hyperlipidemia patients following a cardiovascular event (CVE). **METHODS:** This retrospective cohort study examined hyperlipidemia patients (≥1 medical claim and/or ≥1 prescription for lipid-lowering therapy) using longitudinal administrative claims data from a large commercial US insurer. Those with a CVE and those without a CVE were propensity score matched to adjust for differences in demographics, comorbidities, and coronary heart disease risk. Qualifying CVEs were MI, ischemic stroke, PCI, CABG, unstable angina, TIA or heart failure. Patients were followed from index (date of first CVE or a randomly selected date for those w/o a new CVE) until the earlier of disenrollment, 8/31/12, or 36 months after the index. Analyses reported here are limited to commercially enrolled CVE patients and their matched no CVE pair. The payer perspective was taken for all analyses with cost representing the total health plan + patient paid amounts. Mean ±SD costs are presented for the following periods: acute (days 0-30), short-term (days 31 to 365), 2nd year (days 366-730) and 3rd year (days 731-1095). **RESULTS:** The study included 156,679 pairs. Acute costs were $23,213±41,561 and largely driven by inpatient costs ($18,040±39,805). Acute costs among those with no CVE were significantly less at $799±4,037 (p<0.001). Costs in the short-term were $18,532±48,721 ($6,484±15,948 for no CVE, p<0.001), 2nd year costs were $15,335±43,438 ($4,396±13,326 for no CVE, p<0.001) and 3rd year costs were $14,210±38,681 ($2,704±9,783 for no CVE, p<0.001). **CONCLUSIONS:** Acute costs are highest in hyperlipidemia patients with a CVE compared to those without. The main driver of costs following a CVE was inpatient hospitalizations. Although costs decline in the short- and long-term, costs of patients with CVEs remain high for several years compared to hyperlipidemia patients without CVEs.

PCV54

TREATMENT EFFECTS ON THE COST BURDEN OF HOSPITALIZATIONS IN PATIENTS WITH CHRONIC SYSTOLIC HEART FAILURE

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OBJECTIVES: To quantify the cost savings potential due to a reduction in hospitalizations (all-cause and for worsening HF) for patients with chronic systolic HF. **METHODS:** An economic model was developed to quantify the rates and costs of hospitalizations from both the US commercial (<65 years of age) payer and Medicare perspectives in patients with chronic systolic heart failure. Hospitalization rates and costs by hospitalization type were taken from US commercial and Medicare claims data. The SHIfT trial was used to obtain rate ratios by type for hospitalization of patients receiving ivabradine versus placebo on a background of guideline-suggested drug therapy. A generalized linear model with Poisson distribution and log-link function was used to estimate admission rate ratios adjusted for baseline beta-blocker use. **RESULTS:** In the commercial HF population, an annual rate of all-cause hospitalization of 1.52 per patient-year (PY) results in a cost burden of $46,215/PY; 75% of that cost is from HF-related hospitalizations. The rate ratios and 95% confidence intervals with ivabradine over the entire trial follow-up were: 0.74 (0.68-0.80) and 0.89 (0.82-0.96) for HF-related and all-cause hospitalizations, respectively. With ivabradine, a reduction of $9,980/PY in all-cause hospitalization costs was estimated in the commercially insured HF population, $8,904 of which was due to reductions in HF-related hospitalizations. A higher rate of hospitalization in the Medicare population was observed (2.19/PY), but was associated with a lower cost burden of $29,982/PY due to lower cost per hospitalization. With the same relative risk reduction, ivabradine yielded a $4,627/PY reduction in all-cause hospitalization costs in the Medicare population, $3,207/PY of which was due to reductions in HF-related hospitalizations. **CONCLUSIONS:** The cost burden of hospitalization events is substantial for patients with HF. Reducing the rate of hospitalizations with ivabradine may reduce hospitalization costs by $9,980/PY and $4,627/PY for the commercially insured and Medicare population, respectively.

PCV55

DIRECT MEDICAL BURDEN AND READMISSION RATES AMONG NON-ELDERLY PATIENTS WITH ACUTE ISCHEMIC STROKE IN THE UNITED STATES

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OBJECTIVES: To describe the healthcare resource utilization and costs in the year following hospitalization for acute ischemic stroke (AIS). The mean lifetime cost of AIS is approximately $140,000. With cost estimates projected to increase three-fold by 2020, it is important to gain a better understanding of the direct economic burden of AIS in the US. **METHODS:** The MarketScan® Commercial Database was used to identify non-elderly adults (age 18-64) hospitalized with AIS (index defined as first Medicare Severity Diagnosis Related Group 061-066 and confirmatory AIS diagnosis (ICD-9-CM: 434.x1)) between January 2009 and December 2012. Patients were required to have 12 months of continuous enrollment pre- and post-index. Patients with AIS in the year pre-index were excluded. Demographic and clinical characteristics were evaluated at admission and in the pre-index, respectively. Direct costs, inpatient length of stay (LOS) and readmissions were described in the year post-index. **RESULTS:** A total of 20,314 patients (age= 54.1 years (standard deviation (SD)=7.9); 57.9% male) met all selection criteria. Approximately one-half (46.9%) of patients had baseline hypertension and one-fourth had hyperlipidemia (27.2%) and diabetes (25.7%). Total mean costs for the index AIS admission were $18,456 (SD= $30,549) with an average LOS of 3.8 days (SD=4.5). Mean all-cause costs in the year after an AIS were $61,354 (SD=$83,048), one-half of which were incurred 31-365 days following the incident AIS. One-fourth (24.6%) of patients were readmitted within 30 days, 16.6% of those readmitted had a principal diagnosis of AIS with an average LOS nearly three times that of the initial hospitalization (10.8 days (SD=18.7)). **CONCLUSIONS:** In addition to the substantial costs of the initial hospitalization of an acute ischemic stroke, these costs double within the year following this event. Given the high cost associated with AIS, new interventions reducing either the acute or longer term burden of AIS are needed.

PCV56

INCREMENTAL COSTS OF GIANT CELL ARTERITIS IN FRANCE

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OBJECTIVES: Giant cell arteritis (GCA) is the most frequent primary large-vessel vasculitis in patients aged over 50 years. Common early manifestations include constitutional symptoms, headache, visual loss, polymyalgia rheumatica (PMR), and jaw claudication. The incidence increases with age and is higher in populations of Northern European origin than in those of Mediterranean countries. The incidence of GCA in France is 10 to 20 per 100 000 people older than 50 years. The aim of this study is to assess the net costs due to GCA in France and to identify driver costs of this disease. **METHODS:** This retrospective study used an incidence based approach. Incident GCA patients were identified in the French National Health Insurance System database (SNIIR-AM) from 2005 to 2008. For each case, 6 disease-free age and gender matched-controls were randomly selected. Their resources consumption was recorded over a 5 years period. Costs were estimated from the health insurance perspective. Direct medical, non-medical and indirect costs (i.e. daily benefits) were recorded. GCA patient's costs were compared to control's costs then we calculated GCA net costs. **RESULTS:** 103 GCA patients and 606 control patients were included. In the first year following the diagnosis, GCA patient's costs were 8,139€ and control's costs were 3,661€ (p<0.001), the net GCA costs was 4,478€. This incremental cost was mainly due to inpatients, medications and paramedical costs which accounted for 40%, 17% and 16%, respectively. GCA and controls costs decreased during the 5 year follow-up period from 8,139€ year one to 4,572€ year five for GCA and from 3,661€ to 3,054€ for controls. **CONCLUSIONS:** GCA constitutes a huge economic burden in health insurance expenses.

PCV57

SYSTEMATIC REVIEW OF THE SOCIETAL COST AND ECONOMIC BURDEN ASSOCIATED WITH CHRONIC HEART FAILURE

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OBJECTIVES: Chronic heart failure (CHF) is a progressive, debilitating disease where the heart is unable to pump enough blood throughout the body. In a recent trial, LCZ 696, a novel combination drug, showed significantly reduced mortality and heart failure hospitalisations compared with enalapril for the treatment of patients with CHF. The objective of this study was to systematically identify and quantify the non-health sector costs for adults with CHF and in caregivers to patients with CHF. **METHODS:** Embase, Medline, Cochrane Library and relevant conferences and HTA databases were searched systematically in July 2014 to identify articles containing CHF populations with any data on indirect or direct cost/resource use that did not fall on the health care budget was collected. There was no restriction on intervention or comparator. **RESULTS:** In total, seven studies were identified that met the inclusion criteria of the review. Three studies reported direct costs that do not fall on the health care budget and two studies reported indirect costs incurred by heart failure patients and their caregivers. No studies could be considered generalizable to the UK perspective. The societal cost evidence identified in this review included patient out-of-pocket expenses (US, Brazil, Taiwan, Spain), number of work days lost for patients (US, Brazil), hours of care provided from informal caregivers (Iran, Spain, Taiwan, Australia), and sick leave (US, Brazil) associated with hospitalization for heart failure events. Only scarce information pertaining to direct non-health care sector costs (caregiver time and patient out-of-pocket expenses), and indirect effects on the rest of the economy (sick leave, attendee and patient working days lost) were reported. **CONCLUSIONS:** In summary, this review highlights the paucity of available societal cost evidence for patients with chronic heart failure. Further studies are needed to address this knowledge gap.

PCV58

LONG-TERM ECONOMIC BURDEN ASSOCIATED WITH CARDIOVASCULAR EVENTS AMONG HIGH-RISK PATIENTS WITH HYPERLIPIDEMIA

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OBJECTIVES: This study evaluated the economic burden associated with new cardiovascular events (CVEs) for 3 years post-CVE among high-risk patients diagnosed with hyperlipidemia. **METHODS:** A retrospective cohort study was conducted among high-risk hyperlipidemic patients with and without a new CVE, using IMS LifeLink PharMetrics Plus data 01/01/2006-06/30/2012. CVEs included primary inpatient claims for myocardial infarction, unstable angina, ischemic stroke, transient ischemic attack, revascularization and heart failure. Patients were assigned to risk cohorts based on history of CVE and coronary heart disease risk equivalent (CHD RE) condition. Propensity score matching was applied to compare healthcare costs among patients with and without new CVEs, ranging from 1 month (acute phase) to 3 years post-CVE date. **RESULTS:** A total of 21,482 matched patients were included in the history of CVE cohort and 181,228 in the CHD RE cohort. Hyperlipidemic patients with new CVEs were, on average, aged 65-72 years, both cohorts had 65.2% male and 74.7-84.4% had hypertension (most common baseline comorbidity). Total costs per patient per month (PPPM) were significantly higher among patients with versus without new CVEs during the acute phase (history of CVE: $27,247 vs. $1,586; CHD RE: $30,742 vs. $914; p<0.0001) and remained higher during years 1, 2 and 3, respectively, post-CVE among patients in the history of CVE cohort ($2,603 vs. $1,252; $2,055 vs. $1,191; $2,061 vs. $1,166, p<0.0001) and CHD RE cohort ($1,926 vs. $844; $1,535 vs. $850; $1,475 vs. $853, p<0.0001). Significant cost differences were observed between patients with and without new CVEs in both cohorts, including inpatient, outpatient, emergency room and pharmacy visit costs PPPM, during 1-3 years post-CVE. **CONCLUSIONS:** Healthcare costs for high-risk patients with new CVEs remained significantly higher than for matched patients

without CVEs for up to 3 years post-CVE, imposing a significant economic burden on U.S. commercial payers.

PCV59

THE INCREMENTAL COST OF REOPERATIONS FOR BLEEDING EVENTS IN CARDIAC AND VASCULAR RECONSTRUCTIVE SURGERY

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OBJECTIVES: Previous studies estimate that up to 15% of patients who undergo cardiovascular surgery require reoperation due to bleeding. The objective of this study is to estimate the incremental cost to hospitals for reoperations where a bleeding event is the primary reason across cardiovascular reconstructive surgeries. **METHODS:** The study identified patients age 18 years or older with a record in the Premier hospital database between January 1, 2010 to September 30, 2012 who underwent cardiovascular reconstructive surgery. An algorithm (clinician expert rules and Premier Chargemaster data) was developed to define a reoperation where a bleeding event is the primary reason. Patients were excluded from analysis if extracorporeal circulation was utilized during the reoperation. The final sample included 294,548 patients in seven procedure groups: CABG, valve repair/replacement, AAA repair, AV access, endarterectomy, femoral-femoral/femoral-popliteal bypass, and other vascular. Multivariable modeling was performed to estimate the incremental effect on hospital costs for bleeding events that required reoperation. Regression models to control for age, gender, race, marital status, insurance type, and severity and mortality risk were performed for each category of cardiac and vascular reconstructive surgery. **RESULTS:** Descriptive results indicated that average hospital visit costs with no reoperation ranged between $10,832 [SD $10,731] and $48,768 [$28,368] depending on the procedure. The incremental additional cost per visit associated with a reoperation surgery for bleeding is estimated as follows by procedure group: CABG $30,951[$1,431]; valve repair $27,037 [$2,124]; AAA repair $30,145 [$1,235]; AV access $11,996 [$1,073]; endarterectomy $18,645 [$512]; fem-fem/fem-pop bypass $44,383 [$1,699], and other vascular $25,861 [$432]. **CONCLUSIONS:** The incremental cost of reoperations for bleeding events in cardiac and vascular reconstructive surgery varied between 63% and 179% depending on the procedure group, with the largest increase for femoral-femoral bypass procedures, CABG, AAA repair, and valve procedures respectively.

PCV60

COST EFFECTIVENESS OF STATINS IN PRIMARY PREVENTION OF CORONARY HEART DISEASE: A SYSTEMATIC REVIEW AND QUALITY ASSESSMENT OF ECONOMIC EVIDENCE TO ELUCIDATE RECENT TRENDS IN USA

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OBJECTIVES: The objective of this investigation was to compare the contrasting results of recent cost-effectiveness analyses of statins. **METHODS:** A systematic review of the literature on statin cost-effectiveness was conducted as per Cochrane methodology. **RESULTS:** The four studies that met inclusion criteria reported variable conclusions about the cost-effectiveness of statin treatment, without a clear unanimity as to whether statins are cost-effective for primary prevention. All studies analyzed health care costs from the health care system perspective – inclusive of and limited to all direct medical costs to all payers resulting from the statin therapy. The time horizon varied from as 5 years to lifetime. Annual drug prices ranged from $770 to over $1,500 in 2006 dollars. The studies reported varying assessments of the cost-effectiveness of statins. Costs ranged from $590,000 to $3 to extend life by one year. Recently published studies found statin therapy more likely to be cost-effective. However, when each study's assumptions about statin costs were accounted, a substantial agreement among the authors was observed. Studies which assumed statins to be more costly found them to be less cost-effective, and vice-versa. Moreover, treatment of the lower risk groups appeared cost-effective as statins became cheaper. The studies were appraised using Philips and NICE checklist (qualitatively) and Quality of health economic studies (quantitatively). The studies were found to be of average quality. **CONCLUSIONS:** As the statins become generic, the chances of the patients at low risk for coronary disease may be treated cost-effectively increases. It would be thus reasonable for clinicians to treat low-risk patients and statin therapy for a broader patient base, based on cost-effectiveness.

PCV62

ANNUAL MEDICATION COST ATTRIBUTED TO EACH KIND OF TREATMENT OF PATIENTS SUBJECTED TO CRMDS IMPLANTATION

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OBJECTIVES: To estimate the percentage of annual follow up medication cost attributed to each kind of treatment of unselected patients subjected to CRMDs implantation in a real-world setting. **METHODS:** During a period of one year in total 464 (370 were subjected to PM implantation, 240 initial, 130 replacement and 94 to ICD implantation, 80 initial, 14 replacement) consecutive recipients were subjected to CRMD's implantation and furthermore were recruited and followed up for 1 year. At six and twelve months after the procedure of implantation we record the medication use for each patient. **RESULTS:** For the patients were subjected in PM initial implantation antiplatelet–anticoagulants represent 24,5%, antiarrhythmic 1,1,%, cardiovascular 47,8%, lipid–lowering 22,6% and antidiabetics 3,9% of the total annual follow up medication cost. For the patients were subjected to PM replacement antiplatelet–anticoagulants represent 19,6%%, antiarrhythmic 1,7%, cardiovascular 49,9%, lipid–lowering 22,7% and Antidiabetics the 6,1% of the total annual follow up medication cost . For the patients were subjected to ICD initial implantation antiplatelet–anticoagulants represent 24,4 %, antiarrhythmic 2,2 %, cardiovascular 44,2 %, lipid–lowering 25,0% and antidiabetics 4,1% of the total annual follow up medication cost. For the patients were subjected to ICD replacement antiplatelet–anticoagulants represent the 28,7 %, antiarrhythmic the 7,7 %, Cardiovascular 58,1 %, Lipid–lowering 5,5% and Antidiabetics 0,0% of the total annual follow up medication cost . **CONCLUSIONS:** The present study provides unique data regarding the percentage of annual medication cost attributed to each kind of treatment of unselected patients subjected to CRMDs implantation in a real-world setting.

PCV63

COST-EFFECTIVENESS OF STRATEGIES FOR MANAGEMENT OF DEEP VEIN THROMBOSIS

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OBJECTIVES: To estimate the cost-effectiveness of strategies for treatment deep vein thrombosis (DVT), the primary objective was to compare of effects of catheter-directed thrombolysis (CDT) and anticoagulation versus anticoagulation in the management of people with DVT of the lower limb. DVT occurs when a blood clot forms in a leg vein. The clot can break up and move to the lungs, leading to a potentially serious blockage in blood flow (pulmonary embolism). Because of the damage to the leg vein, post-thrombotic syndrome (PTS) may develop any time over the next couple of years. **METHODS:** We used a Markov state transition decision model to evaluate the cost-effectiveness of treatment strategies using a societal perspective for costs, effectiveness-measured in incremental cost-effectiveness. Data sources included the English language literature using MEDLINE searches and bibliographies from selected articles. **RESULTS:** Our study showed that CDT may have advantages over standard anticoagulation treatment. CDT effectively dissolved the clot so that complete clot breakdown occurred more often with CDT than with standard anticoagulant therapy. CDT and anticoagulation with compression stockings was associated with an effectiveness of 21.67 QALYs and a lifetime cost of $48 442. The incremental cost-effectiveness ratio (ICER) was $14 728/QALY gained. CDT increases the patency of veins and reduces the incidence of PTS following DVT by 35%. Strict eligibility criteria are necessary to reduce the risk of bleeding complications and this limits the applicability of this treatment. **CONCLUSIONS:** CDT and anticoagulation are highly cost-effective strategies for treatment patients with DVT and a low risk of bleeding. Use of strict eligibility criteria has improved the safety and acceptability of this treatment, with treatment directed by catheter in more extensive clots now the favoured method.

PCV64

ECONOMIC EVALUATION OF DABIGATRAN ETEXILATE FOR THE TREATMENT OF DEEP VENOUS THROMOEMBOLISM AND PULMONARY EMBOLISM

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OBJECTIVES: To evaluate the economic value of dabigatran in the treatment of deep vein thrombosis (DVT), pulmonary embolism (PE) and prevention of recurrent events in comparison with other reimbursed oral anticoagulants warfarin and rivaroxaban from a perspective of Mexican public institutions. **METHODS:** A Markov disease model with one month cycles length was developed. A number of parameters were followed in the model within the lifetime horizon (mean 18.2 years from diagnosis for Mexican patients), including efficacy and safety relevant events and treatment related costs. Main modelling outcome was life-years gained. Identical hypothetical cohorts of patients entered the model, following either acute index DVT or PE (500 simulations per treatment arm). Modelled efficacy endpoints (recurrent venous thromboembolic events, including DVT, fatal and non-fatal PE), safety endpoints (major and clinically relevant non-major bleeds) and treatment related adverse events were utilized from published results of head to head clinical trials or derived in network meta-analysis and indirect comparisons. Public institutional direct medical costs (2014 purchases and price tabulators) where retrieved to adopt the national health system perspective. **RESULTS:** Mean life-years saved for dabigatran, warfarin and rivaroxaban were 4.478, 4.475 and 4.476 respectively. The highest cost of treatment was reported by rivaroxaban with 7,959.15 USD, followed by warfarin (7,923.31 USD) and dabigatran (7,748.46 USD). ICER showed dabigatran is a dominant alternative versus both rivaroxaban and warfarin. Results were robust to changes in discount rates. Dabigatran remained as a dominant alternative versus rivaroxaban and as a cost-effective one versus warfarin, in a price sensitivity analysis. **CONCLUSIONS:** From a perspective of Mexican public institutions, the treatment with dabigatran resulted to be a cost-saving alternative that could potentially increase life-years gained without increasing health care spends.

PCV65

COST-EFECTIVENESS OF DABIGATRAN IN NON VALVULAR ATRIAL FIBRILLATION IN COLOMBIA

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OBJECTIVES: Atrial fibrillation (AF) is the most common cardiac rhythm disorder; it increases stroke risk 5 to 6 times. Prevalence in Colombia has been estimated in 3.6% in population age 60 or over (some 180 000 potential patients). The aim of this study was to estimate cost-effectiveness of dabigatran 110 mg and 150 mg BID as a therapy for non valvular AF in Colombian population. **METHODS:** From a third-party payer perspective (Colombian health system) we used a three-month cycle Markov model with six health states (and death): non-disabling stroke, disabling stroke, acute myocardial infarction and pulmonary embolism; two additional events were transient states: minor and mayor bleeding. Transition probabilities and proportion of events